

**PATIENT**

Robin Raulston

**PRESENTING CLINICAL SIGNS**

increased liver values and now kidney values have worsened- was recently hospitalized for pancreatitis-painful in cranial abdomen- CPL abnormal- vomiting- ADR

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**BREED**

Mixed

**Urinary System**

The urinary bladder is moderately distended with anechoic urine. The Bladder wall is subjectively thickened and irregular diffusely. The area of the ureteral papilla and visible urethra (to a depth of 2cm) appear normal with no evidence of masses or cystic calculi. Findings are most consistent with cystitis.

**SEX**

Spayed Female

The left kidney has a normal shape and size (6.54 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**AGE**

Geriatric

The right kidney has a normal shape and size (6.73 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**WEIGHT**

45 Pounds

**Adrenal Glands**

The left adrenal gland is normal/borderline large in size measuring 0.85 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

**INTERPRETED BY**

Kathleen Sennello DVM,  
MS, Diplomate ACVIM  
(Small Animal Internal  
Medicine)

The right adrenal gland is normal/borderline large in size measuring 0.94 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

**IMAGING PERFORMED BY**

Loetitia Saint-Jacques, RVT

**Spleen**

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

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Pleasant Valley VH

**Liver**

The liver is subjectively normal in size, and echogenicity with irregular margins. The parenchyma is severe heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. The liver is severely mottled with indistinct, coalescing, hypoechoic nodules varying in size from 0.2-1.0 cm, giving it a somewhat moth eaten appearance. These lesions appear more severe on the left side.

**REFERRING VET**

Dr. Nancy Reese

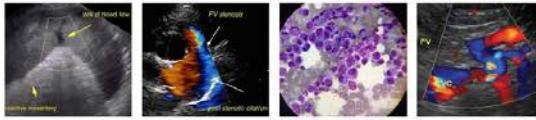
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The gall bladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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**Gastrointestinal**

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

**SPECIES**

Canine

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Duodenum wall measured 0.45 cm. Jejunum wall measured 0.38, 0.32 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

**BREED**

Mixed

**SEX**

Spayed Female

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

**Pancreas**

**AGE**

Geriatric

The pancreas is prominent and hypoechoic as compared to the surrounding isoechoic mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

**WEIGHT**

45 Pounds

**Free Abdomen**

Evaluation of the peritoneal cavity did not reveal any evidence of effusion. Mild mesenteric lymphadenopathy is noted. The iliac lymph node is measured at 1.0 cm and a mesenteric lymph node measures at 0.72 cm. The omentum is generally of normal uniform echogenicity.

**INTERPRETED BY**

Kathleen Sennello DVM,  
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(Small Animal Internal  
Medicine)

**Other**

A brief view of the heart was submitted. No pericardial effusion was seen.

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**PRIMARY FINDINGS**

- Severely heterogeneous liver with ill-defined, hypoechoic nodules – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.
- Mildly irregular urinary bladder wall – The bladder mucosal changes could be consistent with cystitis or artifactual due to lack of adequate luminal distension. Bladder neoplasia cannot be ruled out but is considered unlikely in this patient.
- Prominent hypoechoic pancreas with peripancreatic inflammation – The pancreatic changes are most consistent with mild/moderate pancreatitis/pancreatic inflammation. Recommend fPLI testing and continued monitoring for improvement or possible development of a pancreatic abscess. Consider fine needle aspirate if not improving.
- Moderate gallbladder sludge – The significance of the aggregated gallbladder sludge is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting.
- Mild mesenteric lymphadenopathy – The prominent abdominal lymph nodes are most consistent with reactive lymphadenitis or lymphoid hyperplasia. Neoplastic infiltration is considered less likely.

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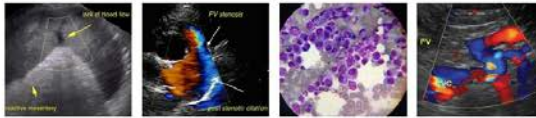
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**SECONDARY FINDINGS**

- Borderline bilateral adrenomegaly – The bilateral adrenomegaly could be consistent with bilateral hyperplasia (e.g., secondary to pituitary-dependent hyperadrenocorticism), bilateral infiltrative neoplasia, inflammatory adrenal disease, other. Correlation with clinical findings is recommended.

**SPECIES**

Canine

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

**BREED**

Mixed

The ultrasonographic changes in the liver were significant. Unfortunately, these changes are non-specific and can be seen with neoplastic and inflammatory type diseases. The scan today supports a primary hepatopathy, as no severe biliary changes were observed.

**SEX**

Spayed Female

- Consider close evaluation of history for possible toxic changes examine medications, diet, dietary indiscretion etc...
- Consider PCR on urine/serum for leptospirosis (if not on antibiotics)/serology if recent antibiotic history
- If not already done, consider pre and post prandial bile acids to evaluate liver function
- If the ALP is significantly elevated relative to the ALT and symptoms consistent with cushings are present, consider adrenal function testing (ACTH stim)
- Consider Fine needle aspirate if round cell neoplasia is on your differentia list (25 g needle, normal coags)
- If no response to supportive care (denamarin, fluids, antibiotics,+/- ursodiol etc...) Consider liver biopsy with samples obtained for histopathology, culture, and copper levels.

**AGE**

Geriatric

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The kidneys appear relatively normal. Testing for Leptospirosis is recommended. Also consider urinalysis and culture and blood pressure evaluation.

**INTERPRETED BY**

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(Small Animal Internal  
Medicine)

The pancreas is somewhat prominent and consistent with pancreatic inflammation. Recommend treatment for pancreatitis and correlation with additional diagnostics. Recommend 3-view thoracic radiographs.

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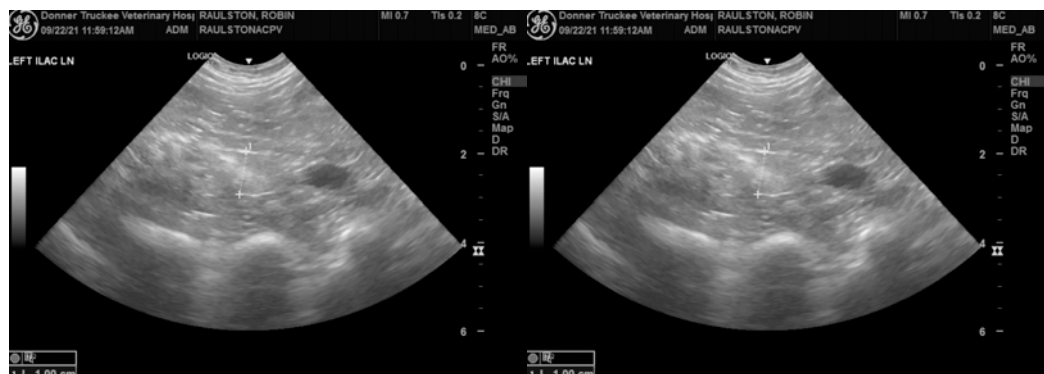
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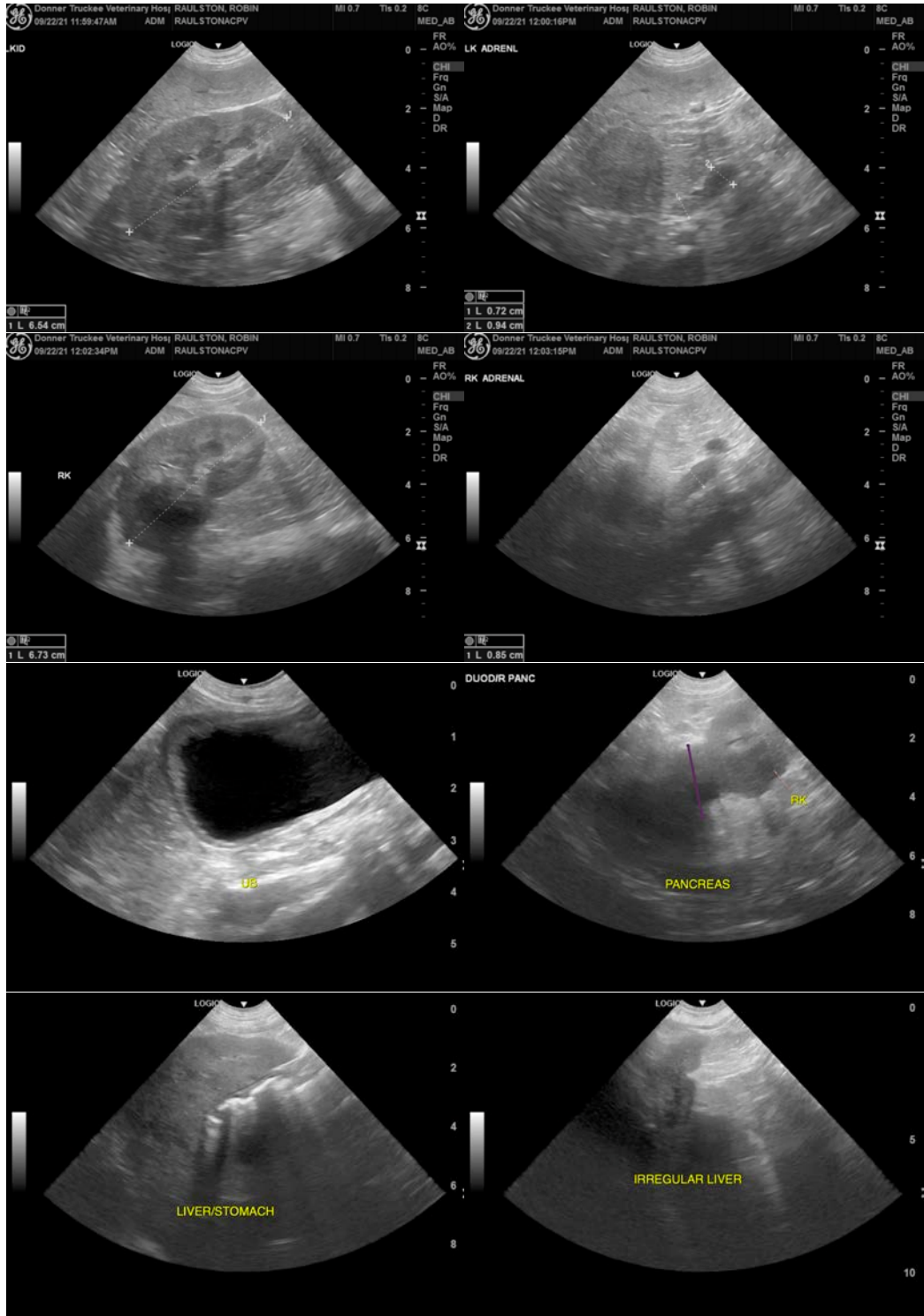
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)

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